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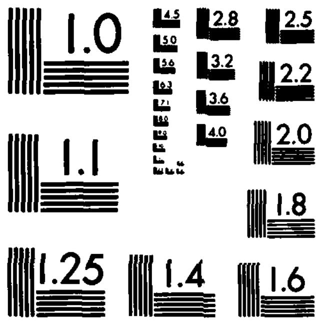
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NAVAL CIVIL ENGINEERING LABORATORY
Port Hueneme, California

Sponsored by
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A GUIDE TO THE ELECTRICAL ANALYSIS SOFTWARE SYSTEM (EASS)

[illegible] 1984

An Investigation Conducted by:
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Camarillo, CA 93010

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METRIC CONVERSION FACTORS

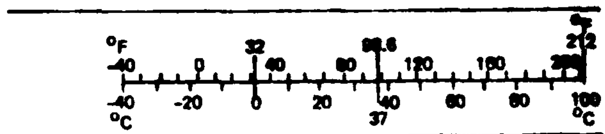
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2,000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1,000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The electrical Analysis Software System (EASS) was developed to statistically analyze Naval activity electrical consumption. The software utilizes two data sources, the Facilities Systems Office Naval Facility Assets/Master Activity General Information and Control data base and the Defense Energy Information System II data base. The commercial statistical

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regression package called Biomedical Computer Programs is used in conjunction with EASS. The FORTRAN source code is included in the text.

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ANALYSIS SOFTWARE SYSTEM (EASS)

1.0 INTRODUCTION

1.1 Background and Scope

Between 1975 and 1983 the electrical consumption for the Navy as a whole rose 12.7 percent. To account for this increase, an Electrical Analysis Software System (EASS) was developed to statistically analyze the change in activity electrical consumption between the baseline year (1975) and the present. The software utilizes two data sources, the Facilities Systems Office (FACSO), Naval Facility Assets/Master Activity General Information and Control (NFA/MAGIC) data base and the Defense Energy Information System (DEIS II) data base, which is also maintained by FACSO. A commercial statistical regression package called Biomedical Computer Programs (BMDP) is an integral part of the software system.

The programs are written in FORTRAN for use on the Pacific Missile Test Center (PMTC) CYBER system. The software package includes programs that tranfer the raw NFA/MAGIC and DEIS II data from tape to disc, programs to clean and organize the data, and regression analysis programs.

This user's guide documents the procedure for executing EASS. The software package is intended for use by individuals who are experienced with FORTRAN and who have some familiarity with statistical regression. The programs are not user friendly and require editing before submittal.

1.2 Program Functions and Interrelationships

EASS consists of the following elements:

1. 5 data tapes
2. 16 data files

3. 11 executable program files

4. 4 nonexecutable command files

Table 1 lists the name, type, and function of each system element. Figure 1 shows the interrelationships between each of the elements and illustrates the general procedure to follow when performing the statistical analysis of current electrical consumption data. Table 2 lists the regression analyses that can be performed using EASS; the type of regression, independent and dependent variables are shown.

To perform any of the analyses, the first step is to acquire the NFA/MAGIC and DEIS II data tapes from FACSO. Programs FACLD and NESALD will create disk files of the NFA/MAGIC and DEIS II tape data, respectively. These disk files are called FACS4 for the NFA/MAGIC data and NESA2 for the DEIS II data. No data cleaning is performed by either FACLD or NESALD.

Once the data have been loaded to disk, the programs FACCL and NESACL are run to generate the cleaned data stored in files CLFAC and CLNEE. CLNEE contains the following data:

- DEIS II Unit Identification Code (UIC)
- Current Activity Square Footage Area
- Current Other Square Footage Area
- 1975 Activity Square Footage Area
- 1975 Activity Electrical Comsumption (MWHr)
- Current Activity Electrical Consumption (MWHr)
- Total Cost for Electrical Consumption ($)

The FACCL program reduces the NFA/MAGIC data file to 15 elements per record which include only building data for the DEIS II UICs contained on file CLNEE. Duplicate facilities are screened.

Once the data are cleaned and stored on files CLFAC and CLNEE the user has a choice between either performing the 'Change from the Baseline' analysis

Table 1. EASS Elements

Element Name	Type	Functional Description
VSN #	Data Tape	NFA/MAGIC Dump Tape 1
VSN #	Data Tape	NFA/MAGIC Dump Tape 2
VSN #	Data Tape	NFA/MAGIC Dump Tape 3
VSN #	Data Tape	NFA/MAGIC Dump Tape 4
VSN #	Data Tape	DEIS II Dump Tape
TAPELD	Executable Program File	Creates a disk file containing the raw NFA/MAGIC data.
NESALD	Executable Program File	Creates a disk file containing the raw DEIS II data.
FACS4	Data File	File created by TAPELD containing the raw NFA/MAGIC data.
NESA2	Data File	File created by NESALD contining the raw DEIS II data.
FACCL	Executable Program File	Creates a disk file containing usable NFA/MAGIC data.
NESACL	Executable Program File	Creates a disk file containing usable DEIS II data.
CLFAC	Data File	File created by FACCL containing usable NFA/MAGIC data.
CLNEE	Data File	File created by NESACL containing usable DEIS II data.
COST	Executable Program File	Creates a disk file containing electrical cost data, square footage area changes, and differences in electrical consumption from baseline to present.
COSTD	Data File	File created by COST containing electrical cost data, square footage area changes, and differences in electrical consumption from baseline to present.

Table 1. EASS Elements (Continued)

Element Name	Type	Functional Description
REGCO	Executable Program File	Performs the simple linear regression analysis of the data contained in COSTD in accordance with the commands specified in CON.
CON	Nonexecutable Command File	BMDP simple linear regression commands for developing relationships between electrical costs, change in square footage, and consumption.
STDATA	Executable Program File	Creates 10 data files containing activity electrical consumption and facility square footage data, organized by geographical area.
REG1..., REG10	Data Files	Ten data files created by STDATA; each contains data for one geographical area.
REGCON	Executable Program File	Performs a Mallows Cp regression analysis of the facility square foot and electrical consumption data contained in files REG1-10 utilizing the commands in file CONTRE.
CONTRE	Nonexecutable Commmand File	BMDP Mallows Cp regression commands for developing a relationship between facility areas and electrical consumption.
REGRES1	Executable Program File	Performs a multiple linear regression analysis of the facility square foot and electrical consumption data contained in files REG1-10 utilizing the commands in file CONTRO1
CONTRO1	Nonexecutable Command File	BMDP multiple linear regression commands for developing a relationship between facility areas and electrical consumption
PROBASE	Executable Program File	Calculates the family housing square footage and electrical consumption for 1975 and the present. Writes the calculated values to data file DIFFD.
DIFFD	Data File	Data file created by PROBASE containing the family housing square footages and electrical consumptions for 1975 and present.

Table 1. EASS Elements (Continued)

Element Name	Type	Functional Description
REGRESS	Executable Program File	Performs a simple linear regression analysis to relate the family housing square footage area to electrical consumption. Utilizes the commands in file CONTROL and the DIFFD data.
CONTROL	Nonexecutable Command File	BMDP simple linear regression commands for developing a line through the origin relating family housing square footage area to electrical consumption.

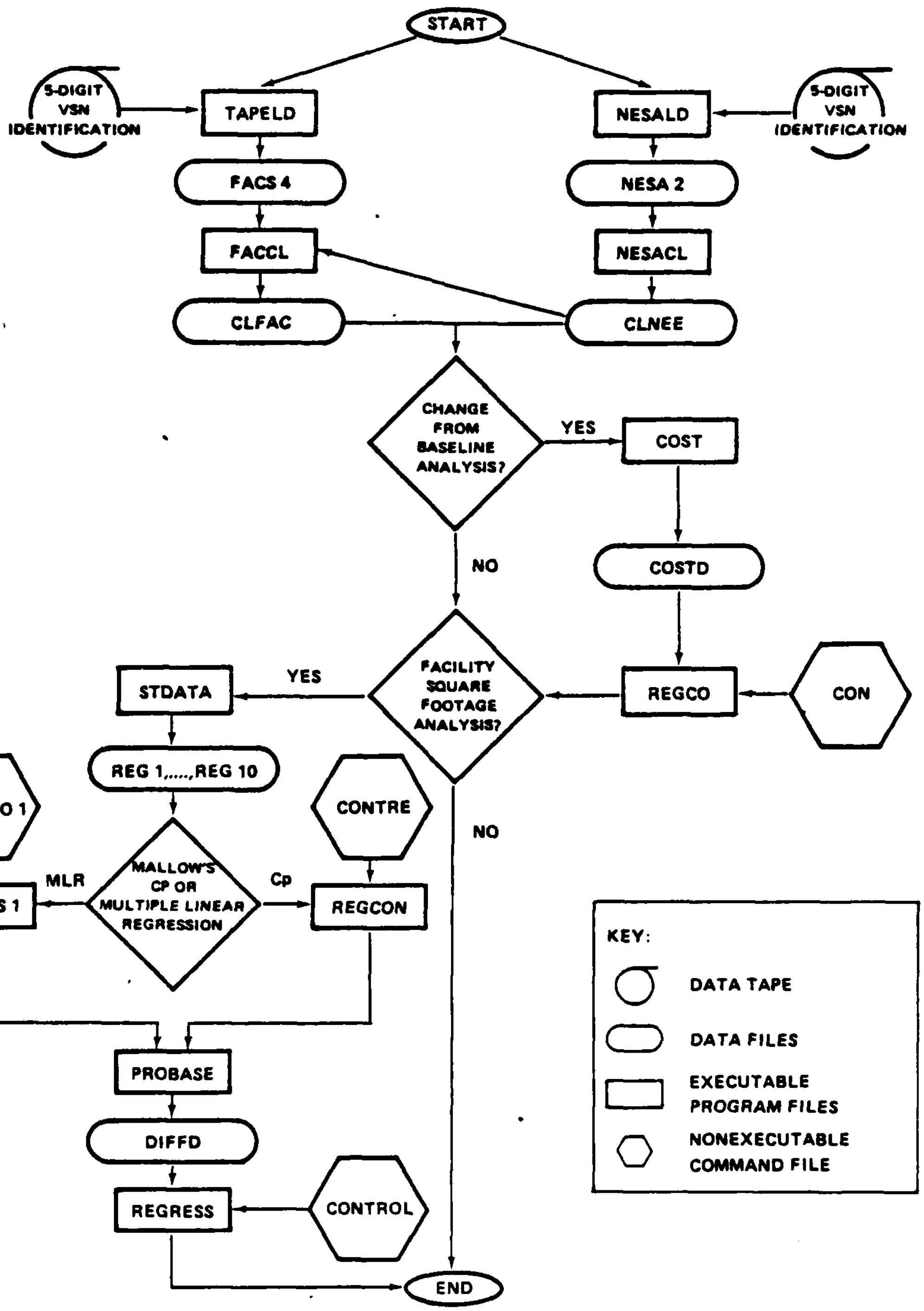

Figure 1. Software Procedure Flowchart

Table 2 EASS Analyses

No.	Regression Type	Dependent Variables	Independent Variables
1.	Simple Linear	Change in Electrical Consumption, 1975 to present	Unit cost of electricity
2.	Simple Linear	Percent change in electrical consumption, 1975 to present	Unit cost of electricity
3.	Simple Linear	Change in electrical consumption per square foot, 1975 to present	Unit cost of electricity
4.	Simple Linear	Change in electrical consumption, 1975 to present	Change in activity square footage area, 1975 to present
5.	Multiple Linear	Change in electrical consumption, 1975 to present	Change in activity square footage area, 1975 to present and unit cost of electricity
6.	Multiple Linear Regression thru the Origin	Activity electrical consumption (either 1975 or present)	Square footage areas for each facility type
7.	Mallows Cp Multiple Linear Regression thru the Origin	Activity electrical consumption (either 1975 or present)	Square footage areas for each facility type
8.	Simple Linear Regression thru the Origin	Family housing electrical consumption (either 1975 or present)	Family housing square footage area (either 1975 or present).

or the 'Facility Square Footage' analysis. The 'Change from the Baseline' analysis includes the first five regressions shown in Table 2. The 'Facility Square Footage' analysis consists of analyses 6 through 8 in Table 2.

To analyze the change in electrical consumption between 1975 and the present, the program COST is run to organize the data in a form consistent with BMDP. Once COST is completed, REGCO is executed. The results of REGCO include the regression coefficients and correlation coefficients for the first five analyses of Table 2.

To perform the facility square footage regressions, STDATA is run to organize the data by geographical area and facility CCN. Once the results of STDATA are obtained, either REGRES1 or REGCON is run to perform a multiple linear regression or Mallows Cp regression, respectively. The program PROBASE organizes the family housing data for the program REGRESS. REGRESS performs a simple linear regression analysis through the origin between the family square footage data and the family housing electrical consumptions.

1.3 Manual Organization

Chapter 1 has described the general procedure for executing the software system. Chapters 2 through 5 discuss the loading, cleaning, organizing and regression programs, respectively. Chapter 6 provides the user with a guide to the CYBER system editor.

2.0 DATA LOADING PROGRAMS

2.1 NFA/MAGIC Tape to Disk Transfer Program, TAPELD

The purpose of program TAPELD is to transfer the NFA/MAGIC data stored on tape to the NCEL L62 disk pack. The disk pack has the following parameters:

SN = NCEL62

VSN = V20

PW = MP6284

The NFA/MAGIC data base is usually contained on four tapes. These tapes can be obtained from Gail Stovall at FACSO, 982-3486, Ext. 520. Each tape is identified by a VSN number which is printed on the side of the tape. The tapes should be delivered to the computer control center at PMTC, 982-8149. The tapes can be stored at PMTC for ten working days; after which they will be returned to the owner.

The program TAPELD can be batched using the commands shown in Chapter 6. Before batching, one correction to the program is required. The fourth statement must be modified to reflect the VSN numbers of the new tapes. This statement can be edited using EDIT which is described in detail in Chapter 6. A listing of TAPELD is shown in Appendix A.

The result of batching TAPELD is a file called FACS4 which contains the entire NFA/MAGIC data base. The output to the batch will indicate the number of records written to the disk file. The number of records should be recorded, as it will be used in another program.

2.2 DEIS II Tape to Disk Transfer Program, NESALD

The DEIS II dump tape can be obtained from Gail Stovall at FACSO, 982-3486, Ext. 520. Once obtained, it should be delivered to the PMTC computer control center, 982-8149.

The program NESALD is used to transfer the DEIS II data stored on tape to an NCEL L62 disk pack file called NESA2. Before using the batch instructions shown in Chapter 6, two program modifications must be made. First the VSN number on the fourth line must be modified to reflect the new identifier. Secondly, the twelfth line must show the maximum record number on the DEIS II tape. The statement "MAX = 18519" should be modified to reflect the number of records on the tape. NESALD is listed in Appendix A for reference. The record count may be printed on the tape label or may be obtained from Gail Stovall when the tapes are acquired from FACSO.

After the program NESALD has run, all of the DEIS II information for the present year will be resident on a disk file called NESA2. The output of the batch job will indicate if the load was successful. If the catalog was completed, the data were transferred from tape to disk completely.

3.0 DATA CLEANING PROGRAMS

Once the data have been transferred to disk, two programs must be run to clean the data. NESACL should be run before FACCL because the output of NESACL is used by the FACCL program.

3.1 DEIS II Data Cleaning Program, NESACL

The program NESACL performs the following three functions on the DEIS II data stored in file NESA2:

1. Deletion of energy usage data not pertaining to electrical consumption.
2. Conversion of signed variables to numerical integers.
3. Summation of electrical consumption and cost for each DEIS II UIC.

In its first function, NESACL checks for electrical consumption records. If the data is concerned with some other energy form such as steam, the record is skipped.

Some of the data in the DEIS II data base, are expressed as signed variables. For example, the square footage areas recorded for "current other" facilities (CUROTH) may assume a negative value. Expressed as a signed variable, CUROTH will contain in its last field a number from 1 to 9, a letter from A to R, a space, or another character. This character expresses the sign of the variable and the value of its last digit. If the last field is between 1 and 9, the variable is positive and its last digit is equal to the value of the number. If the last field is a letter or character, the following is concluded about the sign and value of the last digit of CUROTH.

Last Digit	Sign	Value of Last Digit
A	+	1
B	+	2
C	+	3
D	+	4
E	+	5
F	+	6
G	+	7
H	+	8
I	+	9
J	-	1
K	-	2
L	-	3
M	-	4
N	-	5
O	-	6
P	-	7
Q	-	8
R	-	9
Space	-	0
Other non-numeric character	+	0

For example if CUROTH was assigned a value of 2013R, it would equal - 20139 as shown above.

To determine the total electrical consumption and cost for a DEIS II UIC, the individual records pertaining to that acitiviy must be summed. NESACL also performs this function and calculates the total electrical cost, current annual consumption, and baseline year consumption for each DEIS II UIC.

The following cleaned data are written to a disk file called CLNEE.

- DEIS II UIC
- Current Activity Square Footage

- Current Other Square Footage
- Baseline Square Footage
- Baseline Electrical Consumption (MWHr)
- Current Electrical Consumption (MWHr)
- Total Cost of Electricity ($)

The output of the program is a listing of the cleaned data and the number of DEIS II records written to file CLNEE. The number of records will be used in other programs.

One modification to the program NESACL is required for each run. NREC is equal to the number of logical records contained on the NESA2 disk file and DELS II data type. The "NREC =_________" statement must be modified to reflect the number of logical records contained in file NESA2. A listing of NESACL is included in Appendix A.

3.2 NFA/MAGIC Data Cleaning Program, FACCL

The program used to clean the NFA/MAGIC data is called FACCL. FACCL performs the following actions on the disk file FACS4:

1. Deletion of non-building type facility records
2. Deletion of duplicate facility records
3. Deletion of facilities not contained within the DEIS II UICs listed in file CLNEE.
4. Abstraction of important data elements.

Structures that are not considered buildings are not included in the analyses. The program FACCL screens the non-building type structures. Any duplicate facilities are also screened. Unique facilities are identified by their Activity UIC/Property Record Number combination. The facilities are checked for their DEIS II UIC. If the DEIS II UIC is not listed in file CLNEE, no electrical consumption data are available for this activity and the record is eliminated.

After a facility has been checked for duplication, verified that it is a building, and determined to be assigned to a good DEIS II UIC, the following information is written to the file CLFAC:

- Engineering Field Division (EFD) UIC
- Plant Property UIC
- Major Claimant UIC
- Activity UIC
- Property Record Number
- Facility Type
- State Code
- Area
- Construction Type Code
- Year Built
- Year of Last Capital Improvement
- Prime Use CCN
- Area Unit of Measure
- Navy Facility Category Code
- DEIS II UIC

The program FACCL will print as output the total number of clean facility records written to the file CLFAC. Each time FACCL is run, two program lines must be modified. The line 'NDEIS =__________' must be changed to reflect the number of DEIS II activities written to file CLNEE (output from NESACL). The line 'NREC = _________' should show the number of records contained within file FACS4. This value is also equal to the number of records contained on the NFA/MAGIC tapes and is an output of the program TAPELD. FACCL is listed in Appendix A for reference.

4.0 DATA ORGANIZATION

Once the data have been loaded and cleaned they must be organized for use in the various BMDP requession programs. The following three programs are used to organize the data:

1. COST
2. STDATA
3. PROBASE

Each of these programs will be described in detail in this Chapter.

4.1 Change From Baseline Analysis - Data Organization, COST

The program COST is used to calculate the difference in activity square footage from 1975 to the present, the unit cost of electricity, the change in electrical consumption from 1975 to the present, the percent change in electrical consumption from the baseline year, and the change in consumption per square foot area. These five values are computed for each activity and written to a file called COSTD. COSTD is not stored on the NCEL L62 disk pack; rather it is stored as a permanent file under ID = EIDE. Permanent file storage is discussed in Chapter 6.

The program COST uses the file CLNEE as input. The output of the program is a listing of each data element for all of the DEIS II UICs in file CLNEE. The only modification to the program COST that is required is a change in the statement 'NDEIS =__________'. This value should reflect the number of DEIS II UICs contained in file CLNEE, which is an output of the program NESACL. A listing of the program COST is included for reference in Appendix A.

4.2 Facility Square Footage - Data Organization, STDATA

The program STDATA is the most complex to use of any of the programs in EASS. STDATA can create up to 10 data files named REG1, REG2,..., REG10.

Each file contains the facility square foot areas and activity electrical consumptions for a separate geographical area. Geographical area can be designated by any one of the following six variables:

1. State
2. EFD UIC
3. Plant Property UIC
4. Major Claimant UIC
5. Activity UIC
6. DEIS II UIC

The user specifies the variable and the elements per area. For example, if the activities are to be organized by state, the user selects geographical code 1. Similarly, if the data are to be organized by major claimant UIC, the user specifies 4 for the geographical code. Next he selects the elements for each geographical area. For example, when organizing geographical areas by state, the user might construct the following zones:

Zone 1 (Southeast)	Zone 2 (Atlantic Seaboard)	Zone 3 (Northwest)	Zone 4 (Southwest)
Texas	Maryland	Washington	California
Louisiana	Delaware	Oregon	Arizona
Mississippi	New York		New Mexico
Alabama	New Jersey		
Georgia	Connecticut		
Florida	Rhode Island		
South Carolina	Massachusetts		
North Carolina	District of Columbia		
Virginia			

STDATA would develop four data files, REG1, REG2, REG3, and REG4, one for each of the different geographical zones. Appendix B contains a listing of a numerical codes used by the program to identify each of the states.

STDATA will also screen the facility data by three construction selections:

1. Construction Code
2. Year Built
3. Last Capital Improvement Year

The user specifies one of the following for the construction code:

Code	Term	Definition
P	Permanent	A building designed and constructed to serve its purpose for a period of at least 25 years with no undue maintenance requirements.
S	Semi-permanent	A building designed and constructed to serve its purpose for a period of from 5-24 years with no undue maintenance requirements.
T	*Temporary*	A building designed and constructed to serve its purpose for a period less than 5 years.

The program will only consider facilities with the selected code.

The user can also investigate buildings that were constructed or improved within a user specified period. To study a specific construction period, the user specifies a value of 2 for the construction index and the construction period. For example, if the period from 1975 through 1983 was selected, only facilities constructed during this period would be included in the analysis. Similarly, if the user is interested in specifying a period for the last year of capital improvement, a value of 3 would be assigned to the construction index and an improvement period would be input by the user. The program would consider only facilities improved within the specified time frame.

The user must also specify which CCN the facility square footage areas will be based upon. The CCN selection consists of the following two options:

1. Navy Facility CCN
2. Prime Use CCN

Once the user has selected one of the these options, the facility classifications must be specified by CCN. The following list shows an example of eight facility classifications and the corresponding CCNs used to identify these groupings.

Facility Description	CCN
Port Facilities and Storage	11100-16999, 40000-49999
Training	17000-19999
Maintenance	20000-21999
Production	22000-29999
Laboratories	30000-39999
Medical and Dispensaries	50000-59999
Administration	60000-69999
Troop Housing, Community Facilities and Utilities	72100-89999

The user must specify how many facility classifications are of interest and how many CCN ranges describe each facility classification. In the above example, the first facility classification, Port Facilities and Storage, requires two CCN ranges, 111000 to 16999 and 40000 to 49999. All other classifications require one CCN range.

The user must also change the two program statements:

'NDEIS = ________'

and

'NFAC = ________'

to reflect the number of records on files CLNEE and CLFAC, respectively. The source listing of the program STDATA is shown in Appendix A. A complete description of the program's data format is in Appendix C.

4.3 Family Housing Data Organization, PROBASE

The program PROBASE organizes the family housing data for use in the regression analysis program. The program utilizes the data contained in the file CLNEE to calculate the electrical consumptions for 1975 and the present in units of MBtus, and the family housing square footage areas for the family housing avtivities. As in the other programs, PROBASE requires one modification before execution. The statement 'NDEIS =__________' must be changed to reflect the number of DEIS II records contained in file CLNEE. The program writes the output to the permanent file DIFFD which is stored under ID=EIDE. PROBASE is listed in Appendix A.

5.0 REGRESSION PROGRAMS

After the data organization procedure is completed, the regression analyses can be performed. The EASS regression programs are as follows:

1. REGCO (Analyses 1-5, Table 2)
2. REGCON (Analysis 7, Table 2)
3. REGRES1 (Analysis 6, Table 2)
4. REGRESS (Analysis 8, Table 2)

These programs and their corresponding control files are described in detail in this chapter.

5.1 Change from Baseline Regression Analysis, REGCO

Once the data file COSTD has been created, the program REGCO can be batched. REGCO performs the first five analyses listed in Table 2. The results of the analysis are expressed in terms of the variable names assigned to the dependent and independent variables shown in Table 3.

Table 3. Variable Names Used in Program REGCO

Variable Name	Variable Description	Units
ELE	Change in electrical consumption from 1975 to the present.	MBtu
ESQFT	Change in electrical consumption from 1975 to the present per 1975 activity square feet.	$MBtu/ft^2$
COST	Unit cost of electricity.	$/KWHr
PER	Percent change in electrical consumption from 1975 to the present.	%
CSQFT	Change in total activity building area from 1975 to the present.	ft^2

The control file CON describes the regression analyses performed by REGCO. Table 4 summarizes these analyses.

Table 4. REGCO Analyses

Analysis Number	Regressed Equation
1	ESQFT = b0 + b1 COST
2	ELE = b0 + b1 CSQFT
3	ELE = b0 + b1 CSQFT + b2 COST
4	PER = b0 + b1 COST
5	ELE = b0 + b1 COST

The correlation coefficient for each of these analyses is printed also. A listing of both REGCO and CON is shown in Appendix A.

5.2 Mallows Cp Regression Analysis of Facility Areas, REGCON

REGCON performs a Mallows Cp Regression on the data contained in an individual geographical area file (REG1, REG2,..., REG10). The program can be batched once STDATA has been run. REGCON must be edited to reflect the data file for which the analysis is being conducted. Any existing data file REG1 through REG10 can be specified. Each REGx file contains facility data for a different geographical zone x. The following two statements in REGCO must be edited:

ATTACH, REGx, ID = VSE, SN = NCEL62.

and

BMDP9R, I = CONTRE, D = REGx.

The value of x should relect the geographical area for which the analysis is being performed. For example, an analysis of the facility data for geographical area 8 would contain the following statements:

ATTACH, REG8, ID = VSE, SN = NCEL62.

and

BMDP9R, I = CONTRE, D = REG8.

The BMDP control file for REGCON is CONTRE. When different numbers of facility classifications are being analyzed, CONTRE must be changed. The 'INPUT' line must reflect the total number of variables, both dependent and independent included in the analysis. Table 5 gives the variable names and a description of each.

Table 5. Variable Names Used in Program REGCON

Variable Name	Variable Description	Units
ELE	Current annual electrical consumption	MBtu
BAS	Baseline year electrical comsumption	MBtu
SQFTOT	Temporary building area	ft^2
SQFT 1, SQFT 2, ..., SQFTn	Area for facility classification n	ft^2

Any or all of the independent variables can be regressed with the two dependent variables, ELE and BAS. The following changes are needed:

VARIABLES ARE____________________.	(Should reflect total number of dependent and independent variables; not just those used in the analysis.)
NAMES ARE ELE, BAS, SQFTOT, SQFT1, SQFT2, ..., SQFTn.	(Should reflect every variable not just those used in the analysis.)
DEPENDENT IS____________________.	(Should show either BAS or ELE.)
INDEPENDENT ARE____________________.	(Any combination of independent variables.)

REGCON and CONTRE are listed in Appendix A for reference.

The result of Mallows Cp regression is the "best set" of independent variables and their regression coefficients. The correlations between independent variables are listed in addition to the regression correlation coefficient.

5.3 Multiple Linear Regression Analysis of Facility Areas, REGRES1

The program REGRES1 must be modified in a similar way to REGCON to reflect the geographical file (REG1 through REG10) that will be used in the analysis. The control file for REGRES1 is CONTRO1. As in the case of CONTRE, CONTRO1 must be modified to show the proper number of variables. The same changes required of CONTRE are also required of CONTRO1. The user is referred to section 5.2 for the details of these modifications. REGRES1 and CONTRO1 are listed in Appendix A.

5.4 Simple Linear Regression Analysis of Family Housing Area, REGRESS

The program REGRESS determines the the family housing electrical consumption factor for the present or the baseline year. REGRESS uses the control file CONTROL. No modifications to REGRESS are required before batching, however, CONTROL must be changed to reflect which year is being analyzed. The variables used in REGRESS are shown in Table 6. The dependent and independent variables should be CUR75 and BSQFT for the baseline year and CURn and CSQFT for year n . The output from REGRESS includes the regression coefficient and correlation coefficient.

Table 6. Variables Used in Program REGRESS

Variable Name	Variable Description	Units
CSQFT	Current activity family housing area	ft^2
CURn	Activity electrical consumption for year n	MBtu
BSQFT	Baseline activity family housing area	ft^2
CUR75	Baseline electrical consumption for family housing	MBtu

6. USE OF THE PMTC CYBER SYSTEM

This chapter will provide some basic information to assist the user in running EASS on the PMTC CYBER system. For more details or information about this system the user is referred to the CYBER user's group at 982-7178.

6.1 Login Procedure

Before the user name, passwood and ID can be entered, the command 'LOGIN' must be typed in response to the system LOGIN statement. The following login responses are requested:

LOGIN - (respond with LOGIN)

USER NAME - (respond with user name)

PASSWORD - (respond with user password)

USER NUMBER - (respond with user ID)

After responding to these queries correctly, the user will see some system information and the query:

COMMAND -

The user is now ready to begin a programming session.

6.2 Making a File Local

All EASS programs are permanent files stored under the ID 'EIDE'. Before any of the programs can be run they must be made local files. To do this the user simply types the following in response to the COMMAND query:

COMMAND - ATTACH, filename, ID = EIDE

This command will make the file by the name 'filename' a local file. The user is now ready to edit or batch this file.

6.3 Editing a File

To get into the edit mode for a local file the user types the following:

COMMAND - EDIT, filename

This enables the user to make changes to 'filename'. The system should respond with a '?' query indicating that the user is in the edit mode.

The CYBER editor uses a pointer system. The pointer is positioned at the first program line when the editing session is initiated. If the user wishes to list n lines including the pointer line, he follows the instruction:

?Ln

The pointer remains at the first line until moved. To move the pointer, the user types:

?Sn

where n can be either a positive or negative number. This command moves the pointer up or down depending on the sign of n.

Another way to move the pointer is to use the find command, F. This command will station the pointer at the first line below the current pointer position which includes the specified string. An example is:

?F/string/

The D command is used to delete the pointer line and the next n-1 lines as shown:

?Dn

To add lines after the pointer line the user types the following:

?A

The system will instruct the user how to return to the ? prompt when finished adding.

When making changes to the pointer line and subsequent lines the replace string (RS) command is useful as illustrated below:

?RS/string1/ string2/n

This command will replace the phrase shown as string1 by the phrase string2 the next n times it is encountered below the pointer.

The change command, C, is useful for replacing an entire line. The user types the following:

and enters the text required. The % EOR statement will return the user to the ? prompt.

After an editing session is completed, the user types 'END' to save the edited file, or 'QUIT' if the edited file is not to be saved. The user is returned to the COMMAND query after typing either of these two commands.

6.4 Submitting a Batch Job

Before a program can be batched it must first be a local file (see section 6.2). To batch a job the following command is given:

COMMAND - BATCH, filename, INPUT, HERE

This command will submit the file by the name of filename for compilation. If the user types 'FILES' a listing of all local, remote input, remote output, and remote executing files is shown. When the job has run, it will become a remote output file with some name assigned by the system. The user can make this remote output file a local file by entering the following:

COMMAND - BATCH, remote output filename, LOCAL

The user can then use the EDIT commands to review the results.

6.5 Printing Output

To print the results at the CYBER Control Center, the user has two options. If the remote output file has been made local, the following command is used:

PRINTAT, CS, remote output filename

If the user does not want to review his results at the terminal before printing, he can batch the job with the following command:

BATCH, filename, INPUT

This will automatically print the day file and results at the control center.

APPENDIX A

SOURCE LISTINGS OF EASS PROGRAMS

PROGRAM TAPELD

```
ALL4,PE1.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
LIMIT,10000.
VSN,TAPE=50191/50653/50580/50612.
REQUEST,TAPE,PE,L,US,NORING.
REQUEST,FACS4,PF,SN=NCEL62.
FILE,TAPE,RT=F,BT=K,FL=850,RB=19,MBL=16150,CM=YES.
FILE,FACS4,RT=Z,BT=C,MRL=850.
FORM,INP=TAPE,OUT=FACS4.
CATALOG,FACS4,ID=VSE.
UNLOAD,TAPE.
```

PROGRAM NESALD

```
NEESA,PE1.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
LIMIT,10000.
VSN,TAPE=50184.
REQUEST,TAPE,PE,L,US,NORING.
REQUEST,NESA2,PF,SN=NCEL62.
FILE,TAPE,RT=F,BT=K,FL=175,RB=92,MBL=16100,CM=YES.
FILE,NESA2,RT=Z,BT=C,MRL=175.
FORM.
CATALOG,NESA2,ID=VSE.
UNLOAD,TAPE.
*EOR
INP(TAPE,MAX=18519)
OUT(NESA2)
```

PROGRAM NESACL

```
CLNEE,T100.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACH,NESA2,ID=VSE,SN=NCEL62.
PURGE,CLNEE,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,CLNEE.
REQUEST,CLNEE,PF,SN=NCEL62.
FTN5,DB.
LGO.
CATALOG,CLNEE,ID=VSE.
*EOR
      PROGRAM NESACL(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT)
      INTEGER BASCON,CURCON,BAS,CUR,CUROTH
      INTEGER CCOST
      INTEGER COTH,COST
      CHARACTER *8 CURSQF,BASQFT,CSQF,BFT
      CHARACTER *5 DEIS,DEIS1
      CHARACTER *3 ETYPE
      CHARACTER *1 N,N1,C
      OPEN(9,FILE='NESA2',RECL=175)
      OPEN(8,FILE='CLNEE')
      REWIND 8
      REWIND 9
      NREC=18519
C
C
C
C     NREC=THE NUMBER OF LOGICAL RECORDS ON THE NEESA TAPE AND DISK
C
C
C
C
      N1='N'
      DEIS1='00000'
      NDEIS=0
      WRITE(6,105)
      DO 100 I=1,NREC
      READ(9,110)N,DEIS,CURSQF,CUROTH,C,BASQFT,BASCON,CURCON,
     1COST,ETYPE
      IF(C.EQ.'1')GO TO 201
      IF(C.EQ.'2')GO TO 202
      IF(C.EQ.'3')GO TO 203
      IF(C.EQ.'4')GO TO 204
      IF(C.EQ.'5')GO TO 205
      IF(C.EQ.'6')GO TO 206
      IF(C.EQ.'7')GO TO 207
      IF(C.EQ.'8')GO TO 208
```

```
      IF(C.EQ.'9')GO TO 209
      IF(C.EQ.'A')GO TO 201
      IF(C.EQ.'B')GO TO 202
      IF(C.EQ.'C')GO TO 203
      IF(C.EQ.'D')GO TO 204
      IF(C.EQ.'E')GO TO 205
      IF(C.EQ.'F')GO TO 206
      IF(C.EQ.'G')GO TO 207
      IF(C.EQ.'H')GO TO 208
      IF(C.EQ.'I')GO TO 209
      IF(C.EQ.'J')GO TO 219
      IF(C.EQ.'K')GO TO 220
      IF(C.EQ.'L')GO TO 221
      IF(C.EQ.'M')GO TO 222
      IF(C.EQ.'N')GO TO 223
      IF(C.EQ.'O')GO TO 224
      IF(C.EQ.'P')GO TO 225
      IF(C.EQ.'Q')GO TO 226
      IF(C.EQ.'R')GO TO 227
      IF(C.EQ.' ')GO TO 228
  200 CUROTH=CUROTH*10
      GO TO 20
  201 CUROTH=CUROTH*10+1
      GO TO 20
  202 CUROTH=CUROTH*10+2
      GO TO 20
  203 CUROTH=CUROTH*10+3
      GO TO 20
  204 CUROTH=CUROTH*10+4
      GO TO 20
  205 CUROTH=CUROTH*10+5
      GO TO 20
  206 CUROTH=CUROTH*10+6
      GO TO 20
  207 CUROTH=CUROTH*10+7
      GO TO 20
  208 CUROTH=CUROTH*10+8
      GO TO 20
  209 CUROTH=CUROTH*10+9
      GO TO 20
  219 CUROTH=(CUROTH*10+1)*(-1)
      GO TO 20
  220 CUROTH=(CUROTH*10+2)*(-1)
      GO TO 20
  221 CUROTH=(CUROTH*10+3)*(-1)
      GO TO 20
  222 CUROTH=(CUROTH*10+4)*(-1)
      GO TO 20
  223 CUROTH=(CUROTH*10+5)*(-1)
      GO TO 20
```

```
224 CUROTH=(CUROTH*10+6)*(-1)
    GO TO 20
225 CUROTH=(CUROTH*10+7)*(-1)
    GO TO 20
226 CUROTH=(CUROTH*10+8)*(-1)
    GO TO 20
227 CUROTH=(CUROTH*10+9)*(-1)
    GO TO 20
228 CUROTH=(CUROTH*10)*(-1)
 20 CONTINUE
    IF(N.NE.'N'.AND.N.NE.'D')GO TO 100
    IF(DEIS.NE.DEIS1.OR.N.NE.N1)GO TO 40
    IF(ETYPE.EQ.'ELC')GO TO 30
    GO TO 100
 30 CUR=CURCON+CUR
    BAS=BASCON+BAS
    CCOST=COST+CCOST
    GO TO 100
 40 IF(I.EQ.1)GO TO 50
    WRITE(8,120)N1,DEIS1,CSQF,COTH,BFT,BAS,CUR,CCOST
    NDEIS=NDEIS+1
    WRITE(6,120)N1,DEIS1,CSQF,COTH,BFT,BAS,CUR,CCOST
 50 DEIS1=DEIS
    N1=N
    CCOST=0
    CUR=0
    BAS=0
    CSQF=CURSQF
    COTH=CUROTH
    BFT=BASQFT
    IF(ETYPE.EQ.'ELC')GO TO 60
    GO TO 100
 60 CUR=CURCON
    CCOST=COST
    BAS=BASCON
100 CONTINUE
    IF(N.NE.'N'.AND.N.NE.'D')GO TO 102
    WRITE(8,120)N1,DEIS1,CSQF,COTH,BFT,BAS,CUR,CCOST
    WRITE(6,120)N1,DEIS1,CSQF,COTH,BFT,BAS,CUR,CCOST
    NDEIS=NDEIS+1
102 CONTINUE
    WRITE(6,130)NDEIS
105 FORMAT(1X,'DEISII',3X,'CURSQF',4X,'CUROTH',4X,'BASQFT',
   14X,'TOTBASC',3X,'TOTCURC',3X,'COST')
110 FORMAT(22X,A1,A5,39X,A8,I7,A1,A8,2I8,8X,I8,18X,A3)
120 FORMAT(1X,A1,A5,2X,A8,2X,I8,2X,A8,2(2X,I8),I8)
130 FORMAT(1X,'THE NUMBER OF DEISII UICS IS ',I8)
    STOP
    END
```

PROGRAM FACCL

```
FACCL,T60000,CM100000.DEMONSABER,43455SD2.
RFL(100000)
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACH,CLNEE,ID=VSE,SN=NCEL62.
ATTACH,FACS4,ID=VSE,SN=NCEL62.
REQUEST,CLFAC,PF,SN=NCEL62.
FTN5,DO=LONG,DB.
LGO.
CATALOG,CLFAC,ID=VSE.
*EOR
      PROGRAM FACCL(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT)
      CHARACTER*6 UIC,PRN
      CHARACTER*6 DEIS(600)
      CHARACTER*6 A1(1000),A2(1000),A3(1000),A4(1000),A5(1000)
      CHARACTER*1 A6(1000)
      CHARACTER*2 A7(1000)
      CHARACTER*8 A8(1000)
      CHARACTER*1 A9(1000)
      CHARACTER*4 A10(1000),A11(1000)
      CHARACTER*5 A12(1000)
      CHARACTER*2 A13(1000)
      CHARACTER*5 A14(1000)
      CHARACTER*6 A15(1000)
      OPEN(9,FILE='FACS4',RECL=850)
      OPEN(7,FILE='CLNEE')
      OPEN(8,FILE='CLFAC')
      REWIND 7
      REWIND 8
      REWIND 9
C
C
C
C     NDEIS=THE NUMBER OF DEISII ACTIVITIES.
C
C
C
C
      NDEIS=515
      INSUM=0
      READ(7,20)(DEIS(I),I=1,NDEIS)
   20 FORMAT(1X,A6)
C
C
C
C     NREC=THE NUMBER OF LOGICAL FACSO RECORDS.
C
C
C
      NREC=192065
      IREC=NREC/1000
```

PROGRAM FACCL (CONTINUED)

```
      IREST=NREC-IREC*1000
      IRECP=IREC+1
      DO 201 IM=1,IRECP
      IF(IM.EQ.IRECP)JCOUNT=IREST
      IF(IM.LT.IRECP)JCOUNT=1000
      DO 100 I=1,JCOUNT
      READ(9,30)A1(I),A2(I),A3(I),A4(I),A5(I),A6(I),
     1A7(I),A8(I),A9(I),A10(I),A11(I),A12(I),A13(I),
     1A14(I),A15(I)
   30 FORMAT(5A6,29X,A1,52X,A2,69X,A8,7X,A1,2X,
     12A4,157X,A5,1X,A2,28X,A5,414X,
     1A6)
  100 CONTINUE
C
C
C
C*******************************************************
C
C          VARIABLE DESCRIPTION
C
C  A1  = EFD UIC
C  A2  = PLANT PROPERTY UIC
C  A3  = MAJOR CLAIMANT UIC
C  A4  = ACTIVITY UIC
C  A5  = PROPERTY RECORD NUMBER
C  A6  = FACILITY TYPE
C  A7  = STATE CODE
C  A8  = AREA
C  A9  = CONSTRUCTION TYPE CODE
C  A10= YEAR BUILT
C  A11= YEAR OF LAST CAPITAL IMPROVEMENT
C  A12= PRIME-USE
C  A13= AREA UNIT OF MEASURE
C  A14= NAVY FACILITY CATEGORY CODE
C  A15= DEISII UIC
C
C
C***********************************************
C
C
      IF(IM.LE.IREC)ICOUNT=1000
      IF(IM.GT.IREC)ICOUNT=IREST
      DO 99 IN=1,ICOUNT
      IF(A6(IN).NE.'2')GO TO 89
      DO 40 J=1,NDEIS
      IF(A15(IN).EQ.DEIS(J))GO TO 50
   40 CONTINUE
      GO TO 89
   50 CONTINUE
      IP=IN-1
```

PROGRAM FACCL (CONTINUED)

```
      IF(IN.EQ.1.AND.IM.EQ.1)GO TO 103
      IF(IN.EQ.1)GO TO 888
      GO TO 887
  888 IF(A4(1).EQ.UIC.AND.A5(1).EQ.PRN)GO TO 89
  887 CONTINUE
      DO 98 IO=1,IP
      IF(A4(IO).EQ.A4(IN).AND.A5(IO).EQ.A5(IN))GO TO 89
   98 CONTINUE
  103 INDI=1
      UIC=A4(IN)
      PRN=A5(IN)
      WRITE(8,82)A1(IN),A2(IN),A3(IN),A4(IN),A5(IN),
     1A6(IN),A7(IN),A8(IN),A9(IN),A10(IN),A11(IN),
     2A12(IN),A13(IN),A14(IN),A15(IN)
      GO TO 99
   89 INDI=0
   99 INSUM=INSUM+INDI
C
C
C       INSUM = THE # OF RECORDS WRITTEN TO CLFAC
C
C
  201 CONTINUE
   82 FORMAT(5(1X,A6),1X,A1,1X,A2,1X,A8,1X,A1,1X,
     1A4,1X,A4,1X,A5,1X,A2,1X,A5,1X,A6)
      WRITE(6,101)INSUM
  101 FORMAT(1X,'THE NUMBER OF FACILITIES WRITTEN TO CLFAC',
     1' IS EQUAL TO',I6)
      STOP
      END
```

PROGRAM COST

```
STDATA.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACH,CLNEE,ID=VSE,SN=NCEL62.
REQUEST,COSTD,PF.
FTN5.
LGO.
CATALOG,COSTD,ID=EIDE.
*EOR
      PROGRAM CODATA(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT)
      DIMENSION TOTSQ(600),ELE(600),COST(600),PER(600),
     1ESQFT(600)
      INTEGER S,O,B,E,C,BFT
      OPEN(8,FILE='CLNEE')
      OPEN(9,FILE='COSTD')
      J=0
C
C
      NDEIS = 514
C
C
      DO 101 I=1,NDEIS
      READ(8,100)S,O,BFT,B,E,C
  100 FORMAT(9X,I8,2X,I8,2X,I8,2X,I8,2X,I8,I8)
      IF(C.LT.1)GO TO 101
      IF(E.LT.1)GO TO 101
      IF(B.LT.1)GO TO 101
      IF(S.LT.1)GO TO 101
      J=J+1
      TOTSQ(J)=S+O
      ELE(J)=FLOAT(E-B)*11.6
      COST(J)=C/(E*1000.)
      PER(J)=100.*FLOAT(E-B)/FLOAT(B)
      ESQFT(J)=ELE(J)/TOTSQ(J)
      IF(PER(J).GT.100.)GO TO 101
      CSQFT=TOTSQ(J)-FLOAT(BFT)
      WRITE(9,200)ELE(J),COST(J),PER(J),ESQFT(J),CSQFT
  200 FORMAT(1X,F12.1,1X,F6.4,1X,F12.6,1X,F12.5,1X,F12.1)
  101 CONTINUE
      END
```

PROGRAM STDATA

```
STDATA,T10000,CM300000.DEMONSABER,43455SD2.
RFL(300000)
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACH,CLNEE,ID=VSE,SN=NCEL62.
ATTACH,CLFAC,ID=VSE,SN=NCEL62.
PURGE,REG1,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG1.
PURGE,REG2,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG2.
PURGE,REG3,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG3.
PURGE,REG4,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG4.
PURGE,REG5,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG5.
PURGE,REG6,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG6.
PURGE.REG7,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG7.
PURGE,REG8,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
```

```
SET,EF=0.
ENDIF,OK.
RETURN,REG8.
PURGE,REG9,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG9.
PURGE,REG10,ID=VSE,SN=NCEL62.
SKIP,OK.
EXIT,S.
SET,EF=0.
ENDIF,OK.
RETURN,REG10.
REQUEST,REG1,PF,SN=NCEL62.
REQUEST,REG2,PF,SN=NCEL62.
REQUEST,REG3,PF,SN=NCEL62.
REQUEST,REG4,PF,SN=NCEL62.
REQUEST,REG5,PF,SN=NCEL62.
REQUEST,REG6,PF,SN=NCEL62.
REQUEST,REG7,PF,SN=NCEL62.
REQUEST,REG8,PF,SN=NCEL62.
REQUEST,REG9,PF,SN=NCEL62.
REQUEST,REG10,PF,SN=NCEL62.
FTN5.
LGO.
CATALOG,REG1,ID=VSE.
CATALOG,REG2,ID=VSE.
CATALOG,REG3,ID=VSE.
CATALOG,REG4,ID=VSE.
CATALOG,REG5,ID=VSE.
CATALOG,REG6,ID=VSE.
CATALOG,REG7,ID=VSE.
CATALOG,REG8,ID=VSE.
CATALOG,REG9,ID=VSE.
CATALOG,REG10,ID=VSE.
*EOR
      PROGRAM STDATA(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT)
      DIMENSION NGSET(10),ICCNS(20),COTH(600),BFT(600)
      DIMENSION COST(600)
      DIMENSION BAS(600),IMAX(20,10),CSQF(600)
      DIMENSION ELE(600),IMIN(20,10)
      CHARACTER*6 GEO(10,100)
      CHARACTER*2 STAIN(600)
      CHARACTER*2 STA(10,50)
      CHARACTER*6 DEIS(600),GEOIN(600),A1,A2,A3,A4,A15
      CHARACTER*1 A6
      CHARACTER*1 A9
      CHARACTER*2 A7
```

PROGRAM STDATA (CONTINUED)

```
      CHARACTER*2 A13
      CHARACTER*6 A5
      INTEGER A8,A10,A11,A12,A14
      INTEGER DAREA(600,20)
      CHARACTER*1 CC
      I1=0
      I2=0
      I3=0
      I4=0
      I5=0
      I6=0
      I7=0
      I8=0
      I9=0
      I10=0
C
C
C
C
C     VARIABLE LIST
C
C
C
C      THE DATA CAN BE ORGANIZED BY GEOGRAPHICAL AREA,
C      CONSTRUCTION TYPE, AND CCN.
C
C
C      GEOGRAPHICAL SELECTIONS
C       ( 1)STATE
C       ( 2)EFD UIC
C       ( 3)PLANT PROPERTY UIC
C       ( 4)MAJOR CLAIMANT UIC
C       ( 5)ACTIVITY UIC
C       ( 6)DEISII UIC
C
C      CONSTRUCTION SELECTIONS
C       ( 1)CONSTRUCTION CODE
C       ( 2)YEAR BUILT
C       ( 3)LAST CAPITAL IMPROVEMENT YEAR
C
C      CCN SELECTIONS
C       ( 1)NAVY FACILITY CCN
C       ( 2)PRIME USE CCN
C
C
C
C       IGEO IS THE GEOGRAPHICAL SELECTION INDEX
C       EG. IF IGEO = 1 THE DATA WILL BE ORGANIZED BY STATE
C       ICON IS THE CONSTRUCTION TYPE INDEX
C       EG. IF ICON = 2 THE DATA WILL BE ORGANIZED BY YEAR BUILT
```

```
C         ICCN IS THE CCN TYPE INDEX
C         EG. IF ICCN = 2 THE DATA WILL BE ORGANIZED BY PRIME USE CCN
C
C
C        IGEO MUST BE GREATER THAN OR EQUAL TO 1
C
C        IF ICON = 0 THE DATA ARE NOT ORGANIZED BY
C             CONSTRUCTION TYPE
C
C        ICCN MUST BE GREATER THAN OR EQUAL TO 1
C
C
C
C
C         INPUT INDICES
C
C
      READ(5,10)IGEO,ICON,ICCN
   10 FORMAT(1X,I1,1X,I1,1X,I1)
      WRITE(6,5550)
 5550 FORMAT(1X,'INDICES INPUT')
      WRITE(6,10)IGEO,ICON,ICCN
C
C
C     THE NUMBER OF GEOGRAPHICAL DIVISIONS = NG
C       ******* NOTE THE MAXIMUM NUMBER OF
C                GEOGRAPHICAL DIVISIONS = 10 **********
C     THE NUMBER OF ELEMENTS PER DIVISION I = NGSET(I)
C     THE ELEMENTS IN UIC GROUP I = GEO(I,J)
C     THE ELEMENTS IN STATE GROUP I = STA(I,J)
C     THE MAXIMUM NUMBER OF UIC'S IN A UIC GROUPING IS 600
C
C
C
      READ(5,101)NG
  101 FORMAT(1X,I2)
      WRITE(6,5551)
 5551 FORMAT(1X,'INPUT # OF GEO DIVISIONS')
      WRITE(6,101)NG
      READ(5,102)(NGSET(I),I=1,NG)
  102 FORMAT(5(1X,I4))
      WRITE(6,5552)
 5552 FORMAT(1X,'INPUT # OF ELEMENTS PER GEO DIVISION')
      WRITE(6,102)(NGSET(I),I=1,NG)
      IF(IGEO.EQ.1)GO TO 105
      WRITE(6,5553)
 5553 FORMAT(1X,'INPUT UICS PER GROUP')
      DO 103 I=1,NG
      READ(5,104)(GEO(I,J),J=1,NGSET(I))
      WRITE(6,104)(GEO(I,J),J=1,NGSET(I))
```

```
  103 CONTINUE
  104 FORMAT(5(1X,A6))
      GO TO 108
  105 CONTINUE
      WRITE(6,5554)
 5554 FORMAT(1X,'INPUT STATES PER GROUP')
      DO 106 I=1,NG
      READ(5,107)(STA(I,J),J=1,NGSET(I))
      WRITE(6,107)(STA(I,J),J=1,NGSET(I))
  106 CONTINUE
  107 FORMAT(5(1X,A2))
  108 CONTINUE
C
C
C
C
C        INPUT CONSTRUCTION INFORMATION OF INTEREST
C
C
C        CONSTRUCTION CODE = CC
C        MINYR AND MAXYR DEFINE THE BUILDING PERIOD
C        MINYRI AND MAXYRI DEFINE THE CAPITAL IMPROVEMENT PERIOD
C
C
C
      IF(ICON.EQ.1)GO TO 201
      IF(ICON.EQ.2)GO TO 202
      IF(ICON.EQ.3)GO TO 203
C
C
C     THE DATA ARE NOT ORGANIZED BY CONSTRUCTION TYPE IF CC = 0
C
C
      GO TO 204
  201 READ(5,210)CC
  210 FORMAT(1X,A1)
      WRITE(6,5555)
 5555 FORMAT(1X,'INPUT CONSTRUCTION CODE')
      WRITE(6,210)CC
      GO TO 204
  202 READ(5,220)MINYR,MAXYR
  220 FORMAT(1X,I4,1X,I4)
      WRITE(6,5556)
 5556 FORMAT(1X,'INPUT CONSTRUCTION YEARS')
      WRITE(6,220)MINYR,MAXYR
      GO TO 204
  203 READ(5,230)MINYRI,MAXYRI
  230 FORMAT(1X,I4,1X,I4)
      WRITE(6,5557)
 5557 FORMAT(1X,'INPUT IMPROVEMENT YEARS')
```

```
      WRITE(6,230)MINYRI,MAXYRI
  204 CONTINUE
C
C
C
C
C      INPUT CCN DATA
C
C
C
C       I IS THE CCN SET INDEX
C       J IS THE CCN ELEMENT INDEX
C       JCCN = THE NUMBER OF CCN SETS
C       THE MAXIMUM NUMBER OF CCN SETS IS 20
C       ICCNS(I) = THE NUMBER OF DATA LINES FOR SET I
C
C
C
C
      READ(5,301)JCCN
  301 FORMAT(1X,I2)
      WRITE(6,5558)
 5558 FORMAT(1X,'INPUT # OF CCN SETS')
      WRITE(6,301)JCCN
      READ(5,302)(ICCNS(I),I=1,JCCN)
  302 FORMAT(5(1X,I3))
      WRITE(6,5559)
 5559 FORMAT(1X,'INPUT # OF LINES PER CCN SET')
      WRITE(6,302)(ICCNS(I),I=1,JCCN)
      WRITE(6,5560)
 5560 FORMAT(1X,'INPUT MIN AND MAX CCNS')
      DO 380 I=1,JCCN
      DO 370 J=1,ICCNS(I)
      READ(5,303)IMIN(I,J),IMAX(I,J)
      WRITE(6,303)IMIN(I,J),IMAX(I,J)
C        IMIN(I,J) EQUALS THE MINIMUM CCN OF GROUP J IN CCN SET I
C        IMIN(I,J) EQUALS THE MAXIMUM CCN OF GROUP J IN CCN SET I
C        EXAMPLE: IF IMIN(1,3)=20000 AND IMAX(1,3)=30000, THE
C                 CCNS > 20000 AND THE CCNS < 30000 ARE INCLUDED
C                 IN SET 1.  THIS IS THE THIRD SUCH GROUPING IN
C                 SET 1 THAT DEFINES THE SET.
  303 FORMAT(1X,I5,1X,I5)
  370 CONTINUE
  380 CONTINUE
      DO 4057 I=1,600
      DO 4057 J=1,20
      DAREA(I,J)=0
 4057 CONTINUE
C
C
```

```
C
C     NFAC = THE NUMBER OF RECORDS OF FILE CLFAC
C
C
C
      NFAC=70357
      OPEN(9,FILE='CLFAC')
      OPEN(8,FILE='CLNEE')
      REWIND 8
      REWIND 9
      NDEIS=514
C
C
C
C     NDEIS = THE NUMBER OF RECORDS OF FILE CLNEE
C
C
C
      DO 500 I=1,NDEIS
      READ(8,501)DEIS(I),ICSQF,ICOTH,IBFT,IBAS,IELE,ICOST
  501 FORMAT(1X,A6,2X,I8,2X,I8,2X,I8,2(2X,I8),I8)
      ELE(I)=IELE*11.6
      BAS(I)=IBAS*11.6
      COTH(I)=ICOTH
      CSQF(I)=ICSQF
      BFT(I)=IBFT
      COST(I)=ICOST/ELE(I)
  500 CONTINUE
C$    DO(LONG)
      DO 750 I=1,NFAC
C$    DO(LONG=0)
      READ(9,733,ERR=750)A1,A2,A3,A4,A5,A6,A7,A8,A9,
     1A10,A11,A12,A13,A14,A15
  733 FORMAT(5(1X,A6),1X,A1,1X,A2,1X,I8,1X,
     1A1,1X,I4,1X,I4,1X,I5,1X,A2,1X,I5,1X,A6)
      IF(A13.NE.'SF')GO TO 9556
      DO 749 J=1,NDEIS
      IF(DEIS(J).NE.A15)GO TO 749
      IF(IGEO.EQ.1)GO TO 741
      IF(IGEO.EQ.2)GO TO 742
      IF(IGEO.EQ.3)GO TO 743
      IF(IGEO.EQ.4)GO TO 744
      IF(IGEO.EQ.5)GO TO 745
      IF(IGEO.EQ.6)GO TO 746
      GO TO 747
C       STAIN(J)= THE STATE THAT DEIS(J) IS LOCATED IN
C       GEOIN(J)= THE UIC THAT DEIS(J) IS LOCATED IN
  741 STAIN(J)=A7
      GO TO 760
```

```
  742 GEOIN(J)=A1
      GO TO /60
  743 GEOIN(J)=A2
      GO TO 760
  744 GEOIN(J)=A3
      GO TO 760
  745 GEOIN(J)=A4
      GO TO 760
  746 GEOIN(J)=A15
  760 CONTINUE
      IF(ICON.EQ.0)GO TO 730
      IF(ICON.EQ.1)GO TO 720
      IF(ICON.EQ.2)GO TO 721
      IF(ICON.EQ.3)GO TO 722
      GO TO 805
  720 IF(CC.EQ.A9)GO TO 730
      GO TO 801
  721 IF(A10.GE.MINYR.AND.A10.LE.MAXYR)GO TO 730
      GO TO 801
  722 IF(A11.GE.MINYRI.AND.A11.LE.MAXYRI)GO TO 730
      GO TO 801
  730 CONTINUE
      DO 780 K=1,JCCN
      DO 781 L=1,ICCNS(K)
      IF(ICCN.EQ.1)GO TO 782
      IF(ICCN.EQ.2)GO TO 783
      GO TO 802
  782 IF(A14.GE.IMIN(K,L).AND.A14.LE.IMAX(K,L))GO TO 792
      GO TO /81
  792 DAREA(J,K)=DAREA(J,K)+A8
      GO TO 801
  783 IF(A12.GE.IMIN(K,L).AND.A12.LE.IMAX(K,L))GO TO 793
      GO TO 781
  793 DAREA(J,K)=DAREA(J,K)+A8
      GO TO 801
  781 CONTINUE
  780 CONTINUE
  801 CONTINUE
C         DAREA(J,K)= THE AREA IN SQ. FT. FOR DEIS(J) AND CCN
C         GROUP K
      GO TO 750
  802 WRITE(6,804)
  804 FORMAT(1X,'NO CCN INDEX WAS SPECIFIED')
      GO TO 9999
  805 WRITE(6,806)
  806 FORMAT(1X,'THERE IS AN ERROR IN THE CONSTRUCTION',
     1' CODE')
      GO TO 9999
  747 WRITE(6,810)
  810 FORMAT(1X,'THERE IS AN ERROR IN THE IGEO INPUT')
```

```
      GO TO 9999
  803 CONTINUE
  749 CONTINUE
  750 CONTINUE
      OPEN(11,FILE='REG1',RECL=264)
      OPEN(12,FILE='REG2',RECL=264)
      OPEN(13,FILE='REG3',RECL=264)
      OPEN(14,FILE='REG4',RECL=264)
      OPEN(15,FILE='REG5',RECL=264)
      OPEN(16,FILE='REG6',RECL=264)
      OPEN(17,FILE='REG7',RECL=264)
      OPEN(18,FILE='REG8',RECL=264)
      OPEN(19,FILE='REG9',RECL=264)
      OPEN(20,FILE='REG10',RECL=264)
      DO 1000 I=1,NDEIS
      DO 1001 J=1,NG
      DO 1002 K=1,NGSET(J)
      IF(IGEO.EQ.1)GO TO 3001
      IF(GEO(J,K).EQ.GEOIN(I))GO TO 1003
      GO TO 1002
 3001 IF(STA(J,K).EQ.STAIN(I))GO TO 1003
 1002 CONTINUE
 1001 CONTINUE
      GO TO 1000
 1003 IF(J.EQ.1)GO TO 1100
      IF(J.EQ.2)GO TO 1200
      IF(J.EQ.3)GO TO 1300
      IF(J.EQ.4)GO TO 1400
      IF(J.EQ.5)GO TO 1500
      IF(J.EQ.6)GO TO 1600
      IF(J.EQ.7)GO TO 1700
      IF(J.EQ.8)GO TO 1800
      IF(J.EQ.9)GO TO 1900
      IF(J.EQ.10)GO TO 2000
      WRITE(6,1010)
 1010 FORMAT(1X,'THERE IS AN ERROR IN THE GEOGRAPHICAL',
     1' GROUPING ROUTINE')
      GO TO 9999
 1100 WRITE(11,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
 1011 FORMAT(1X,A6,1X,F11.1,1X,F11.1,1X,F10.0,20(I8))
      I1=I1+1
      GO TO 999
 1200 WRITE(12,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I2=I2+1
      GO TO 999
 1300 WRITE(13,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I3=I3+1
```

```
      GO TO 999
1400  WRITE(14,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I4=I4+1
      GO TO 999
1500  WRITE(15,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I5=I5+1
      GO TO 999
1600  WRITE(16,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I6=I6+1
      GO TO 999
1700  WRITE(17,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I7=I7+1
      GO TO 999
1800  WRITE(18,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I8=I8+1
      GO TO 999
1900  WRITE(19,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I9=I9+1
      GO TO 999
2000  WRITE(20,1011)DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,JCCN)
      I10=I10+1
 999  WRITE(6,1012)J,DEIS(I),ELE(I),BAS(I),COTH(I),
     1(DAREA(I,M),M=1,3)
1000  CONTINUE
      WRITE(6,2002)
2002  FORMAT(1X,'THE NUMBER OF DEIS RECORDS IN EACH ',
     1'GEOGRAPHICAL DIVISION')
1012  FORMAT(1X,I2,1X,A6,1X,F11.1,1X,F11.1,1X,F10.0,
     13(1X,I12))
      WRITE(6,2001)I1,I2,I3,I4,I5,I6,I7,I8,I9,I10
2001  FORMAT(10(1X,I3))
9999  CONTINUE
      GO TO 9557
9556  WRITE(6,9558)
9558  FORMAT(1X,'UNITS ARE NOT ALL IN SQ. FT.')
9557  CONTINUE
      CLOSE(8)
      CLOSE(9)
      CLOSE(11)
      CLOSE(12)
      CLOSE(13)
      CLOSE(14)
      CLOSE(15)
```

PROGRAM STDATA (CONTINUED)

```
      CLOSE(16)
      CLOSE(17)
      CLOSE(18)
      CLOSE(19)
      CLOSE(20)
      STOP
      END
*EOR
 1 0 2                             GEO,CONSTR, AND CCN INDICES
  1                                NUMBER OF GEO OR STATE GROUPS
   22                              NUMBER OF UICS OR STATES PER GROUP
 24 10 36 34 09
 44 25 11 48 22
 28 01 13 12 45
 37 51 06 04 35
 53 41
  9                                NUMBER OF CCN SETS
   2   1   1   1   1                ** THE NUMBER OF LINES FOR EACH CCN SET
   2   1   1   3                    ** THE NUMBER OF LINES FOR EACH CCN SET
 11100 16999                       PORT FACILITIES         MIN,MAX 1
 40000 49999                       STORAGE                 MIN,MAX 1
 17000 19999                       TRAINING                MIN,MAX 2
 20000 21999                       MAINTENANCE             MIN,MAX 3
 22000 29999                       PRODUCTION              MIN,MAX 4
 30000 39999                       LABORATORIES            MIN,MAX 5
 50000 54999                       MEDICAL                 MIN,MAX 6
 55000 59999                       DISPENSARIES            MIN,MAX 6
 60000 69999                       ADMINISTRATION          MIN,MAX 7
 70000 72099                       FAMILY HOUSING          MIN,MAX 8
 73000 79999                       COMMUNITY               MIN,MAX 9
 80000 89999                       UTILITIES               MIN,MAX 9
 72100 72999                       TROOP HOUSING           MIN,MAX 9
```

PROGRAM PROBASE

```
STDATA.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACH,CLNEE,ID=VSE,SN=NCEL62.
REQUEST,DIFFD,PF.
FTN5.
LGO.
CATALOG,DIFFD,ID=EIDE.
*EOR
      PROGRAM DIFDATA(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT)
      CHARACTER*5 DEIS1
      CHARACTER*1 N1
      INTEGER CSQFT,COTH,BFT,BAS,CUR
      OPEN(7,FILE='CLNEE')
      OPEN(8,FILE='DIFFD')
C
C
      NDEIS = 514
C
C
      DO 203 I=1,NDEIS
      READ(7,200)N1,DEIS1,CSQFT,COTH,BFT,BAS,CUR
  200 FORMAT(1X,A1,A5,2X,I8,2X,I8,2X,I8,2X,I8,2X,I8)
      IF(N1.NE.'D')GO TO 203
      RCUR=FLOAT(CUR)*11.6
      RBAS=FLOAT(BAS)*11.6
      CSQFT=CSQFT+COTH
      WRITE(8,100)N1,DEIS1,CSQFT,RCUR,BFT,RBAS
  100 FORMAT(1X,A1,A5,1X,I10,1X,F11.1,1X,I10,1X,F11.1)
  203 CONTINUE
      END
```

PROGRAM REGCO

```
REGR1.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACHC,COSTD,ID=EIDE.
ATTACH,CON,ID=EIDE.
ACCESS,BMDP1R.
BMDP1R,I=CON,D=COSTD.
```

PROGRAM CON

```
/PROBLEM      TITLE IS 'ELE. VS COST'.
/INPUT        VARIABLES ARE 5. UNIT IS 10.
              FORMAT IS '(1X,F12.1,1X,F6.4,1X,F12.6,1X,F12.5,1X,F12.1)'.
/VARIABLE     NAMES ARE ELE,COST,PER,ESQFT,CSQFT.
/REGRESS      DEPENDENT IS ESQFT.
              INDEPENDENT IS COST.
/REGRESS      DEPENDENT IS ELE.
              INDEPENDENT IS CSQFT.
/REGRESS      DEPENDENT IS ELE.
              INDEPENDENT IS CSQFT,COST.
/REGRESS      DEPENDENT IS PER.
              INDEPENDENT IS COST.
/REGRESS      DEPENDENT IS ELE.
              INDEPENDENT IS COST.
/END
```

PROGRAM REGCON

```
REGR1.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACHC,REG1,ID=VSE,SN=NCEL62.
ATTACH,CONTRE,ID=EIDE.
ACCESS,BMDP9R.
BMDP9R,I=CONTRE,D=REG1.
```

PROGRAM CONTRE

```
/PROBLEM      TITLE IS 'ELE. VS SQ. FT. FOR 1975 AND 1983'.
/INPUT        VARIABLES ARE 15. UNIT IS 10.
              FORMAT IS '(8X,F11.1,1X,F11.1,1X,F10.0,12I8)'.
/VARIABLE     NAMES ARE ELE,BAS,SQFTOT,SQFT1,SQFT2,SQFT3,SQFT4,
              SQFT5,SQFT6,SQFT7,SQFT8,SQFT9,SQFT10,SQFT11,SQFT12.
/REGRESS      ZERO.
              METHOD=CP.
              DEPENDENT IS ELE.
              INDEPENDENT ARE SQFTOT,SQFT1,SQFT2,SQFT3,SQFT4,SQFT5,
              SQFT6,SQFT7,SQFT8,SQFT9,SQFT10,SQFT11,SQFT12.
/REGRESS      ZERO.
              METHOD=CP.
              DEPENDENT IS BAS.
              INDEPENDENT ARE SQFTOT,SQFT1,SQFT2,SQFT3,SQFT4,SQFT5,
              SQFT6,SQFT7,SQFT8,SQFT9,SQFT10,SQFT11,SQFT12.
/END
```

PROGRAM REGRES1

```
REGR1.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACHC,REG1,ID=VSE,SN=NCEL62.
ATTACHC,CONTRO1,ID=EIDE.
ACCESS,BMDP1R.
BMDP1R,I=CONTRO1,D=REG1.
```

PROGRAM CONTROl

```
/PROBLEM        TITLE IS 'ELE. VS SQ. FT. FOR 1975'.
/INPUT          VARIABLES ARE 11. UNIT IS 10.
                FORMAT IS '(8X,F11.1,1X,F11.1,1X,F10.0,8I8)'.
/VARIABLE       NAMES ARE ELE,BAS,SQFTOT,SQFT1,SQFT2,SQFT3,SQFT4,
                SQFT5,SQFT6,SQFT7,SQFT8.
/REGRESS        TYPE=ZERO.
                DEPENDENT IS BAS.
                INDEPENDENT ARE SQFTOT,SQFT1,SQFT2,SQFT3,SQFT4,
                SQFT5,SQFT6,SQFT7,SQFT8.
/REGRESS        TYPE=ZERO.
                DEPENDENT IS ELE.
                INDEPENDENT ARE SQFTOT,SQFT1,SQFT2,SQFT3,SQFT4,
                SQFT5,SQFT6,SQFT7,SQFT8.
/PRINT          CORRELATION.
/PLOT           RESIDUAL.
/END
```

PROGRAM REGRESS

```
REGR1.DEMONSABER,43455SD2.
MOUNT,SN=NCEL62,VSN=V20,PW=MP6284.
ATTACHC,DIFFD,ID=EIDE.
ATTACH,CONTROL,ID=EIDE.
ACCESS,BMDP9R.
BMDP9R,I=CONTROL,D=DIFFD.
```

PROGRAM CONTROL

```
/PROBLEM     TITLE IS 'ELE. VS. DEIS II D DATA, 1975 AND 1983'.
/INPUT       VARIABLES ARE 4. UNIT IS 10.
             FORMAT IS '(8X,I10,1X,F11.1,1X,I10,1X,F11.1)'.
/VARIABLE    NAMES ARE CSQFT,CUR83,BSQFT,CUR75.
/REGRESS     METHOD=CP.
             ZERO.
             DEPENDENT IS CUR75.
             INDEPENDENT ARE BSQFT.
/REGRESS     METHOD=CP.
             ZERO.
             DEPENDENT IS CUR83,
             INDEPENDENT ARE CSQFT.
/END
```

APPENDIX B

STATE NUMERICAL CODES

Table B-1. Numerical Codes Used by Program STDATA to Identify States

CODE	STATE	CODE	STATE
01	Alabama	30	Montana
02	Alaska	31	Nebraska
04	Arizona	32	Nevada
05	Arkansas	33	New Hampshire
06	California	34	New Jersey
08	Colorado	35	New Mexico
09	Connecticut	36	New York
10	Delaware	37	North Carolina
11	District of Columbia	38	North Dakota
12	Florida	39	Ohio
13	Georgia	40	Oklahoma
15	Hawaii	41	Oregon
16	Idaho	42	Pennsylvania
17	Illinois	44	Rhode Island
18	Indiana	45	South Carolina
19	Iowa	46	South Dakota
20	Kansas	47	Tennessee
21	Kentucky	48	Texas
22	Louisiana	49	Utah
23	Maine	50	Vermont
24	Maryland	51	Virginia
25	Massachusetts	53	Washington
26	Michigan	54	West Verginia
27	Minnesota	55	Wisconsin
28	Mississippi	56	Wyoming
29	Missouri		

APPENDIX C
PROGRAM STDATA DATA REQUIREMENTS

Appendix C-1. Data Requirements for Program STDATA

The following is an example of the user specified data required by program STDATA:

```
1 0 2                       GEO, CONSTR, AND CCN INDICES
 1                          NUMBER OF GEO OR STATE GROUPS
  22                        NUMBER OF UICS OR STATES PER GROUP
24 10 36 34 09
44 25 11 48 22
28 01 13 12 45
37 51 06 04 35
53 41
 9                          NUMBER OF CCN SETS
  2   1   1   1   1          ** THE NUMBER OF LINES FOR EACH CCN SET
  2   1   1   3              ** THE NUMBER OF LINES FOR EACH CCN SET
11100 16999                 PORT FACILITIES        MIN,MAX 1
40000 49999                 STORAGE                MIN,MAX 1
17000 19999                 TRAINING               MIN,MAX 2
20000 21999                 MAINTENANCE            MIN,MAX 3
22000 29999                 PRODUCTION             MIN,MAX 4
30000 39999                 LABORATORIES           MIN,MAX 5
50000 54999                 MEDICAL                MIN,MAX 6
55000 59999                 DISPENSARIES           MIN,MAX 6
60000 69999                 ADMINISTRATION         MIN,MAX 7
70000 72099                 FAMILY HOUSING         MIN,MAX 8
73000 79999                 COMMUNITY              MIN,MAX 9
80000 89999                 UTILITIES              MIN,MAX 9
72100 72999                 TROOP HOUSING          MIN,MAX 9
```

The three values in the first line specify the geographical, construction, and CCN indices, respectively as described in the text in Chapter 4. The format for this line is (3(1X,I1)). The value of 1 for the geographical index indicates that the data will be organized by state. The value of 0 assumed by the construction code means that the data will not be screened for construction code, year of construction, or year of last building modification. The 2 assigned to the CCN index signifies that the facilities will be organized by prime use CCN. The geographical and CCN indices must be integers greater than or equal to 1.

The second line of the data is the number of geographical divisions or zones. The maximum number of geographical zones allowed is 10. The format for this line is (1X, I2). In the example above, one division is specified. Line three provides the program with the number of elements per geographical zone. The format for these data is (5 (1X, I4)). The value of 22 in line three signifies that 22 states are in geographical zone 1. If other geographical zones were specified, then the corresponding number of elements per zone would be input on this line.

In lines four through eight, the 22 states contained in geographical zone 1 are identified. The format for inputting states is (5 (1X, A2). The beginning of each geographical zone should begin on a new line.

If the data are to be screened by construction index the next data line indicates either the construction code (formatted as (1X, A1)), the range of construction years to be considered (formatted as (2 (1X, I4)) for the first and last year, respectively), and the range of improvement years to be considered (again, the first and last year defining the range are formatted as (2 (1X, I4)). This line needs to be added only when the construction index does not equal zero.

Following the construction values, the number of facility classifications or CCN sets is imputted with a (1X, I2) format. In the example shown above, this value is equal to nine. Directly following this variable, is the number of CCN ranges that define each facility classification. In the case shown previously, the first facility classification consists of two CCN ranges. The ninth classification includes three such CCN ranges. The format for the number of CCN ranges required by each facility classification is (5 (1X, I3).

The last input required by the user is the CCN ranges defining each facility classification. In the example above, 'PORT FACILITIES' and 'STORAGE' form the first facility classification. Lines 12 and 13 show the minimum and maximum CCNs for the ranges comprising the first facility classification. In other words, the CCNs between 11100 and 16999 in addition to the CCNs between 40000 and 49999 define the first facility classification. Classification nine consists of three CCN ranges, 73000 to 79999, 80000 to 89999, and 72100 to 77999.

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